CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

Introduction

Continuous Positive Airway Pressure (CPAP) works by "splinting" the airways with a constant pressure of air, which reduces the work of breathing. In CHF it forces the excess fluid out of the alveoli and interstitial space back into the vasculature as well as decreases venous return to the heart thereby lessening its workload. CPAP can also be a palliative intervention for patients with DNR orders due to the non-invasive nature of pressure support verse ventilatory support.

Indications

1. Age > 15 years old.
2. Patient is awake and oriented.
3. Patient has the ability to maintain an open airway (GCS > 10).
4. Systolic blood pressure above 90 mmHg.

Contraindications

1. Respiratory arrest.
2. Suspected pneumothorax.
3. Patient has a tracheostomy.
4. Patient is at risk for aspiration i.e.: vomiting, foreign body airway occlusion.
5. The patient is intubated. (The CPAPos device is not configured for use with ETT).

Physical Findings

1. Acute Respiratory Distress of any etiology (CHF, COPD, Asthma)
   A. *INCLUSION CRITERIA (2 OR MORE OF THE FOLLOWING)*
      i. Respiratory rate > 25 breaths per minute.
      ii. Retractions, accessory muscle use or fatigue.
      iii. SaO2 < 94% at any time.
   B. Lung exam could have wheezing, rales, or diminished breath sounds depending on etiology of respiratory distress.
2. Respiratory Failure in patient that have a DNR status.

Protocol

1. Ensure that the patient is on continuous cardiac monitor and pulse oximetry.
2. Explain the procedure to the patient.
3. Ensure adequate oxygen supply and assemble CPAP mask, circuit, and device.
4. Assemble required equipment and personnel for RSI in the event the patient deteriorates or is unable to tolerate CPAP.
5. Turn CPAP adjustment knob clockwise to start airflow.
6. Place the mask over the mouth and nose.
7. Secure the mask with straps.
8. Set CPAP pressure to 10 cm H2O.
9. Check for air leaks and adjust mask if needed.
10. Do not break the mask seal to administer nitroglycerin (nitro-lingual) SL.
    A. If nitrates are indicated utilize nitroglycerin paste (nitro-bid) per protocol.
11. Continue to coach patient to keep mask in place, however if the patient is experiencing increasing anxiety lorazepam (Ativan) 1 mg IV diluted with 0.9 % NS may be administered.
    A. The goal of lorazepam (Ativan) is not deep sedation. The goal is to decrease anxiety enough so that the patient tolerates CPAP.

12. If the patient presents with brochospasms (wheezing) a nebulizer may be administered in-line with CPAP.
    A. Place the T-Piece of the nebulizer between the circuit and the mask.
    B. The nebulizer must have an independent oxygen source from CPAP to nebulize the medication.
13. Reassess patient's vital signs and response to CPAP every 5 minutes.
14. If the patient's status improves continue CPAP until the patient is transferred to the care of the receiving hospital.
15. If patient's status deteriorates discontinue CPAP and perform RSI or BNTI.
16. Notify destination hospital that CPAP has been used.
17. CPAP is only to be removed at the receiving hospital under the following circumstances.
    B. Respiratory therapy is present and ready to transfer the patient to their equipment, or
    C. The receiving ED PHYSICIAN is present and requests that CPAP be discontinued.